Claims:

1. In an audio encoder receiving at least two input audio channels, a method comprising

determining a set of spatial parameters of the at least two input audio channels, the set of parameters including a first parameter responsive to a measure of the extent to which spectral components in a first input channel change over time and to a measure of the similarity of the interchannel phase angles of said spectral components of said input channel relative to those of another input channel.

2. An audio encoding method according to claim 1 wherein the measure of the extent to which spectral components in said first input channel change over time are with respect to changes in the amplitude or energy of the respective spectral components.

3. An audio encoding method according to claim 1 or claim 2 wherein the measure of the similarity of the interchannel phase angles of said spectral components of said first input channel relative to those of said another input channel relates to the presence of a phantom image between said input channel and another input channel.

4. An audio encoding method according to any one of claims 1-3 wherein the set of parameters further includes a further parameter responsive to the phase angle of spectral components in said first input channel relative to the phase angle of spectral components in said another input channel.

5. The method of any one of claims 1-4 further comprising generating a monophonic audio signal derived from said at least two input audio channels.

6. The method of claim 5 as dependent on claim 4 wherein said monophonic audio signal is derived from said at least two input audio channels by a process that includes modifying at least one of said at least two input audio channels in response to said first parameter and said further parameter.

7. The method of claim 6 wherein said modifying modifies phase angles of spectral components of said at least one of said at least two input audio channels.

8. The method of any one of claims 5-7 further comprising generating an encoded signal or signals representing the monophonic audio signal and the set of spatial parameters.

9. The method of any of claims 1-4 further comprising generating multiple audio signals derived from said at least two input audio channels.

10. The method of claim 9 wherein said multiple audio signals are derived from said at least two input audio channels by a process that includes passively or actively matrixing said at least two input audio channels.

11. The method of claim 9 or claim 10 as dependent on claim 4 wherein said multiple audio signals are derived from said at least two input audio channels by a process that includes modifying at least one of said at least two input audio channels in response to said first parameter and said further parameter.

12. The method of claim 11 wherein said modifying modifies phase angles of spectral components of said at least one of said at least two input audio channels.

13. The method of any one of claims 10-12 further comprising generating an encoded signal or signals representing the multiple audio signals and the set of spatial parameters.

14. An audio encoding method according to any one of claims 1 through 13 wherein the set of parameters further includes a parameter responsive to the occurrence of a transient in said first input channel.

15. An audio encoding method according to any one of claims 1 through 14 wherein the set of parameters further includes a parameter responsive to the amplitude or energy of said first input channel.

16. An audio encoding method according to any one of claims 1 through 15 wherein the measure of the extent to which spectral components in an input channel change over time are with respect to spectral components in a frequency band of said first input channel, and the measure of the similarity of the interchannel phase angles of said spectral components of said first input channel relative to those of said another input channel are with respect to spectral components in said frequency band of said first input channel relative to spectral components in a corresponding frequency band of said another input channel.

17. In an audio encoder receiving at least two input audio channels, a method comprising

determining a set of spatial parameters of the at least two input audio channels, the set of parameters including a first parameter responsive to the occurrence of a transient in said first input channel.

18. A method of decorrelating an audio signal with respect to one or more other audio signals, wherein the audio signal is divided into a plurality of frequency bands, each band comprising one or more spectral components, comprising

shifting the phase angles of spectral components in the audio signal at least partly in accordance with a first mode of operation and a second mode of operation.

19. The method of claim 18 wherein shifting the phase angles of spectral components in the audio signal in accordance with a first mode of operation includes shifting the phase angles of spectral components in the audio signal in accordance with a first frequency resolution and a first time resolution, and shifting the phase angles of spectral components in the audio signal in accordance with a second mode of operation includes shifting the phase angles of spectral components in the audio signal in accordance with a second frequency resolution and a second time resolution.

20. The method of claim 19 wherein the second time resolution is finer than the first frequency resolution.

21. The method of claim 19 wherein the second frequency resolution is coarser than or the same as the first frequency resolution, and the second time resolution is finer than the first frequency resolution.

22. The method of any one of claims 18 through 21 wherein said first mode of operation comprises shifting the phase angle of spectral components in at least one or more of the plurality of frequency bands, wherein each spectral component is shifted by a different angle, which angle is substantially time invariant, and said second mode of operation comprises shifting the phase angles of all the spectral components in said at least one or more of the plurality of frequency bands by the same angle, wherein a different phase angle shift is applied to each frequency band in which phase angles are shifted and which phase angle shift varies with time.

23. The method of claim 22 wherein in said second mode of operation the phase angles of spectral components within a frequency band are interpolated to reduce phase angle changes from spectral component to spectral component across a frequency band boundary.

24. The method of claim 18 wherein the first mode of operation comprises shifting the phase angle of spectral components in at least one or more of the plurality of frequency bands, wherein each spectral component is shifted by a different angle, which angle is substantially time invariant, and said second mode of operation comprises no shifting of the phase angles of spectral components.

25. The method of any one of claims 18-24 wherein said shifting includes a randomized shifting.

26. The method of any one of claims 18-25 wherein the amount of said randomized shifting is controllable.

27. The method of any one of claims 18-26 wherein the mode of operation is responsive to said audio signal.

28. The method of claim 27 wherein the mode of operation is responsive to the presence of a transient in said audio signal.

29. The method of any one of claims 18-26 wherein the mode of operation is responsive to a control signal.

30. The method of claim 29 wherein the control signal is responsive to the presence of a transient in an audio signal.

31. The method of any one of claims 18-30 further comprising shifting the magnitudes of spectral components in the audio signal.

32. The method of claim 31 wherein shifting the magnitudes of spectral components in the audio signal is in accordance with a first mode of operation and a second mode of operation.

33. The method of claim 32 wherein the mode of operation is responsive to said audio signal.

34. The method of claim 33 wherein the mode of operation is responsive to the presence of a transient in said audio signal.

35. The method of claim 14 wherein the mode of operation is responsive to a control signal.

36. The method of claim 35 wherein the control signal is responsive to the presence of a transient in an audio signal.

37. The method of any one of claims 30-36 wherein shifting the magnitude is a randomized shifting.

38. The method of claim 37 wherein the amount of shifting the magnitude is controllable.

39. In an audio decoder receiving M encoded audio channels representing N audio channels, where M is one or more and N is two or more, and receiving a set of spatial parameters relating to the N audio channels, a method comprising

deriving N audio channels from said M audio channels, wherein an audio signal in each audio channel is divided into a plurality of frequency bands, wherein each band comprises one or more spectral components, and

shifting the phase angle of spectral components in the audio signal in at least one of the N audio channels in response to one or ones of said spatial parameters, wherein said shifting is at least partly in accordance with a first mode of operation and a second mode of operation.

40. The method of claim 39 wherein said N audio channels are derived from said M audio channels by a process that includes passively or actively dematrixing said M audio channels.

41. The method of claim 39 where M is two or more and said N audio channels are derived from said M audio channels by a process that includes actively dematrixing said M audio channels.

42. The method of claim 41 wherein the dematrixing operates at least partly in response to characteristics of said M audio channels.

43. The method of claim 41 or claim 42 wherein the dematrixing operates at least partly in response to one or ones of said spatial parameters.

44. The method of claim 39 wherein shifting the phase angles of spectral components in the audio signal in accordance with a first mode of operation includes shifting the phase angles of spectral components in the audio signal in accordance with a first frequency resolution and a first time resolution, and shifting the phase angles of spectral components in the audio signal in accordance with a second mode of operation includes shifting the phase angles of spectral components in the audio signal in accordance with a second frequency resolution and a second time resolution.

45. The method of claim 44 wherein the second time resolution is finer than the first time resolution.

46. The method of claim 44 wherein the second frequency resolution is coarser than or the same as the first frequency resolution, and the second time resolution is finer than the first time resolution.

47. The method of claim 45 wherein the first frequency resolution is finer than the frequency resolution of the spatial parameters.

48. The method of claim 46 or claim 47 wherein the second time resolution is finer than the time resolution of the spatial parameters.

49. The method of any one of claims 39 through 48 wherein said first mode of operation comprises shifting the phase angle of spectral components in at least one or more of the plurality of frequency bands, wherein each spectral component is shifted by a different angle, which angle is substantially time invariant, and said second mode of operation comprises shifting the phase angles of all the spectral components in said at least one or more of the plurality of frequency bands by the same angle, wherein a different phase angle shift is applied to each frequency band in which phase angles are shifted and which phase angle shift varies with time.

50. The method of claim 49 wherein in said second mode of operation the phase angles of spectral components within a frequency band are interpolated to reduce phase angle changes from spectral component to spectral component across a frequency band boundary.

51. The method of claim 39 wherein the first mode of operation comprises shifting the phase angle of spectral components in at least one or more of the plurality of frequency bands, wherein each spectral component is shifted by a different angle, which angle is substantially time invariant, and said second mode of operation comprises no shifting of the phase angles of spectral components.

52. The method of any one of claims 39-51 wherein said shifting includes a randomized shifting.

53. The method of claim 52 wherein the amount of said randomized shifting is controllable.

54. The method of any one of claims 39-53 further comprising shifting the magnitudes of spectral components in the audio signal in response to one or ones of said spatial parameters in accordance with a first mode of operation and a second mode of operation.

55. The method of claim 54 wherein shifting the magnitude includes a randomized shifting.

56. The method of claim 54 or claim 55 wherein the amount of shifting the magnitude is controllable.

57. In an audio decoder receiving M encoded audio channels representing N audio channels, where M is one or more and N is two or more, and receiving a set of spatial parameters relating to the N audio channels, a method comprising

deriving N audio channels from said M audio channels, wherein said N audio channels are derived from said M audio channels by a process that includes actively dematrixing said M audio channels, wherein the dematrixing operates at least partly in response to characteristics of said M audio channels and at least partly in response to one or ones of said spatial parameters.

58. Apparatus adapted to perform the methods of any one of claims 1 through 57.

59. A computer program, stored on a computer-readable medium for causing a computer to perform the methods of any one of claims 1 through 57.

60. A bitstream produced by the methods of any one of claims 1 through 17.

61. A bitstream produced by apparatus adapted to perform the methods of any one of claims 1 through 17.

62. An encoding/decoding system practicing the method of any one of claims 1-17 and any one of claims 39-57.